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EXAMINER	
DOTE, JANIS L	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/014,570	SCHARFE ET AL.	
	Examiner	Art Unit	
	Janis L. Dote	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6-10,12-18,20,21 and 24-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-10,12-18,20,21 and 24-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on Apr. 14, 2006, has been entered.

2. The examiner acknowledges the amendment to claim 10 set forth in the amendment filed on Apr. 12, 2006. Claims 6-10, 12-18, 20, 21, and 24-26 are pending.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. The examiner notes that US 6,287,737 B1 (Ong'737), US 6,177,219 B1 (Yuh), and US 6,277,535 B1 (Lin) were published on Sep. 11, 2001, Jan. 23, 2001, and Aug. 21, 2001, respectively, prior to the instant application's filing date of Dec. 14, 2001. Because Ong'737, Yuh, and Lin qualify as references under a 35 U.S.C. 102(a), as well as 102(e), they are

available under 35 U.S.C. 103(a) and 103(c). Rejections over Ong'737, Yuh, and Lin are set forth infra.

5. Claims 6-10, 12-16, 20, 21, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,177,219 B1 (Yuh), as evidenced by Diamond, Handbook of Imaging Materials, page 398, (Diamond I), combined with: (1) US 6,277,535 (Lin), as evidenced by US 6,287,737 B1 (Ong'737); and (2) US 4,424,267 (Kondo), as evidenced by Grant & Hackh's Chemical Dictionary, fifth edition, page 503 (Grant & Hackh's I).

Yuh discloses a photoconductive imaging member comprising in order, (1) a substrate **2**, (2) a charge (i.e., hole) blocking layer **4**, (3) an adhesion layer **5**, (4) a charge transport layer **7**, (5) a charge generation layer **6**, and (6) an overcoating layer **8**. See Fig. 2; and col. 2, lines 7-14. The layer structure meets the layer structure recited in instant claim 10.

Yuh does not explicitly state that the photoconductive imaging member is a positively charged imaging member. However, it is well known in the electrophotographic art that the layer structure disclosed by Yuh provides a positively charged photoconductive imaging member. See Diamond, page 398, section 9.4.1, lines 19-21, which states "[w]hen it is desired to charge the photoreceptor to a positive potential, the layers

may be inverted with the transport layer coated on the substrate and the charge generation layer on the top."

(1) The substrate **2** has a thickness that is in the range of about 65 to about 150 μm. Col. 4, lines 3-5. The upper limit, "about 150 μm," of the Yuh thickness range of "about 65 to about 150 μm" meets the thickness range of about 75 to about 275 μm recited in instant claim 6. The Yuh thickness range overlaps the thickness range recited in instant claim 6. Yuh further teaches that the substrate may be flexible or rigid, and in the form of a cylinder, a scroll, or an endless belt, all of which are within the limitations recited in instant claims 6 and 7. See Yuh, col. 3, lines 29-34.

(2) The charge blocking layer **4** comprises a binder resin having dispersed therein a plurality of grain shaped n-type organic pigment particles and a plurality of needle shaped n-type organic particles. Col. 1, lines 52-57; col. 6, lines 1-3; col. 6, lines 17-23. Yuh teaches that the n-type organic pigment particles can include dibromoanthanthrone, benzimidazole perylene, bisazo pigments, or polynuclear aromatic quinones. Col. 6, lines 29-34; and col. 7, lines 41-50. Yuh teaches that benzimidazole perylene is preferably used as the needle-shaped and/or grain shaped particles. Col. 7, lines 50-51. Yuh also identifies benzimidazole perylene as a

photoconductive charge generating pigment (i.e., photogenerating pigment). Col. 8, line 59. Thus, benzimidazole perylene meets the limitation "photogenerating pigment" recited in instant claim 10. According to Yuh, the blocking layer should be continuous and can have a thickness ranging preferably from about 0.05 to about 5 μm, which is within the thickness range of about 0.001 to about 5 μm recited in instant claim 8. Col. 5, lines 32-35. The thickness value of "about 0.05 μm" is within the range of about 0.005 to 0.3 μm recited in instant claim 9.

(3) The adhesive layer **5** has a thickness of about 0.001 to about 0.2 μm, which meets the range of about 0.001 to about 0.2 μm recited in instant claim 12. Col. 8, lines 29-31.

(4) The charge transport layer **7** comprises a charge transport material, such as arylamines, in particular "N,N'-diphenyl-N,N'-bis(alkylphenyl)-(1,1'biphenyl)-4,4'diamines where the alkyl is selected from the group consisting of methyl, ethyl, propyl, butyl, hexyl, and the like." Col. 10, lines 26-30. Said N,N'-diphenyl-N,N'-bis(alkylphenyl)-(1,1'biphenyl)-4,4'diamines meet the arylamine compositional limitations of the formula recited in instant claims 13-15. N,N'-diphenyl-N,N'-bis(alkylphenyl)-(1,1'biphenyl)-4,4'diamines where the alkyl is methyl, ethyl, propyl, or butyl meet the compositional limitations recited in instant claim 16. Yuh

further teaches that the charge transport material can be dispersed in an "inactive" binder resin, such as a polycarbonate resin, as recited in instant claim 14. Col. 10, lines 33-42, and 52-54. The charge transport layer can have a thickness of between about 5 to about 100 μm. Col. 10, lines 62-63. The Yuh thickness range overlaps the range of "about 10 micrometers to about 75 micrometers" recited in instant claim 16.

(5) The charge generation layer **6** comprises particles of a charge generation material dispersed in a film forming binder. Col. 9, lines 6-19 and 40-49. Yuh teaches that the charge generation material can be hydroxygallium phthalocyanine, which meets the hydroxygallium phthalocyanine recited in instant claim 20. Col. 8, lines 63-64. The layer can have a thickness of about 0.1 to about 10 μm, preferably from about 0.2 to about 4 μm. Col. 9, lines 54-57. The lower limit "about 0.2 μm" of the Yuh preferred thickness range meets the range of about 0.2 to about 0.7 μm recited in instant claim 21. Both Yuh ranges overlap the thickness range recited in instant claim 21.

Yuh does not disclose that the binder resin in its blocking layer **4** comprises a crosslinked polysiloxane polymer as recited in instant claim 10. However, Yuh teaches that the "binder resin may be formed of the same materials as that of the blocking layer formed as a single resin layer." Col. 6,

lines 1-3. Yuh further teaches that the blocking layer can comprise a polymer, such as a polysiloxane. Col. 5, lines 1-17.

Lin teaches a single resin charge blocking layer comprising a crosslinked polysiloxane polymer. Col. 2, lines 39 and 47-55; and col. 11, lines 2-9. The crosslinked polysiloxane polymer is obtained by crosslinking polymer (IIIa) in example I of Lin with the silane coupling agents 3-aminopropyl-trimethoxysilane and 1,2-bis(triethoxy-silyl)ethane. Col. 4, lines 50-65; and example I at col. 10. Lin further teaches that its charge blocking underlayer can be used in photoconductive members that follow any of various known photoreceptor designs. Col. 6, lines 51-54. According to Lin, its charge blocking layer provides a solvent resistant and "mechanically and electrically robust undercoating layer that enhances the photoreceptor electrical performance characteristics such as, for example, stable environmental and cyclic performance." Col. 3, lines 8-12; and col. 3, line 66, to col. 4, line 3.

Lin does not explicitly disclose that the crosslinked polysiloxane polymer forms a network impregnated with hydroxy-containing polymers. However, as discussed above, the Lin crosslinked polysiloxane polymer is obtained by crosslinking the polymer (IIIa) in example I of Lin with the silane coupling

agents 3-aminopropyl-trimethoxysilane and 1,2-bis(triethoxysilyl)ethane. The Lin polymer (IIIa) is obtained by reacting the monomers 2-hydroxymethacrylate, 3-(trimethoxy-silyl)propyl methacrylate, and methylmethacryate. The Lin polymer (IIIa) is similar to the Ong'737 polymer (IVa), except for the lack of the vinyl benzene 9-dicyanomethylenefluorene-4-carboxylate repeat units in the Ong'737 polymer (IVa). See Ong'737, col. 16, lines 50-65, and example I at cols. 28-29. Ong'737 teaches that the cross-linking reaction of polymer (IVa) with the silane compound (II), such as 3-aminopropyl-trimethoxysilane, forms a cross-linked polysiloxane polymer network impregnated with hydroxy-containing polymers. See col. 7, line 46; the reaction scheme shown at col. 11, lines 1-52; and example IV at col. 29, lines 45-50. The silane compound II reacts with the silyl functional group of the 3-(trimethoxy-silyl)propyl methacrylate units in the polymer (IVa) to form the cross linked polysiloxane polymer network impregnated with hydroxy-containing polymers. Accordingly, it is reasonable to conclude that the Lin crosslinked polysiloxane forms a network impregnated with hydroxy-containing polymers. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Yuh and Lin, to use the Lin crosslinked polysiloxane polymer as the binder resin in the charge blocking layer in the photoconductive imaging member disclosed by Yuh, as evidenced by Diamond I, such that the cross-linked polysiloxane polymer is dispersed therein with the plurality of grain shaped n-type organic particles and the plurality of needle shaped n-type organic particles, where the organic particles are benzimidazole perylene, as taught by Yuh. That person would have had a reasonable expectation of obtaining a positively charged photoconductive imaging member that has enhanced electrical performance characteristics, in particular stable environmental and cyclic performance, as disclosed by Lin.

Yuh also does not disclose that the overcoating layer **8** comprises a crosslinked silicone rubber and a resilient, electrically insulating overcoating layer as recited in instant claim 10. However, Yuh does not limit the type of overcoating layer used. Yuh teaches that the overcoating layer can comprise organic polymers that are electrically insulating. Col. 11, lines 17-23.

Kondo discloses a two layer topcoat for photoconductive imaging members. Kondo discloses that the photoconductive layer

can be coated with a curable rubber layer and an insulating layer on top of the curable rubber layer. Col. 4, lines 10-13. Kondo teaches that the curable rubber may be a curable silicone rubber. Col. 4, line 46. Kondo discloses that the curable rubber used in its curable rubber layer is a rubber which is cured by energy, such as heat, light, an electron beam and the like. Col. 4, lines 28-30. Kondo discloses that the "curing is caused by the formation of crosslinking and three dimensional chemical structure, and thereby rubber elastic property is decreased." Col. 4, lines 30-33. Thus, Kondo teaches a cross-linked silicone rubber layer, as recited in instant claim 10. According to Kondo, the curable rubber layer improves the adhesion between the photoconductive layer and the insulating layer, which improves the durability of the imaging members to a great extent. Col. 3, lines 37-50; and the table at col. 8 (in particular compare Sample A and comparative Sample B). The table at col. 8 shows that the photoconductive member in Sample A, which comprises the curable rubber layer and the insulating top layer, produced more than 35,000 copies without degrading. However, the table shows that the photoconductive member in Sample B, which only comprises the insulating top layer, produced only 2,000 copies before part of the top layer peeled off.

Kondo discloses that the insulating top layer may have a preferred thickness from 0.1 to 50 micrometers. Col. 5, lines 4-6. Kondo exemplifies an insulating layer comprising a silicone resin having a layer thickness of 10 micrometers, which is within the range of "about 5 micrometers to about 10 micrometers" recited in instant claim 25. Col. 9, lines 32-35.

Kondo further discloses an imaging process comprising the steps of (1) charging an imaging member comprising the insulating silicone resin layer and (2) imagewise exposing the charged imaging member to light to form an electrostatic latent image. Col. 6, lines 42-49; col. 8, lines 18-22; and Sample (G), col. 9, lines 33-35. Thus, Kondo demonstrates that the insulating silicone resin layer is "substantially transparent to activating radiation" as recited in instant claim 26.

Kondo does not disclose that its insulating silicone resin layer is "electrically insulating" and "resilient" as recited in instant claims 10 and 26. However, the Kondo insulating silicone resin layer does not appear to contain any groups that would render it electrically conductive. In addition, the word "resilient" is commonly defined as "elastic, rebounding." See Grant & Hackh's Chemical Dictionary, page 503. According to Kondo, the insulating layer is formed for "the purpose of

protecting the photoconductive layer, improving the mechanical strength of the photosensitive member, and bettering the dark decay characteristics of the member." Col. 1, lines 40-44. Because the Kondo insulating silicone layer does not appear to comprise any groups that would render it electrically conductive and because it improves the mechanical strength of the photosensitive member, it is reasonable to conclude that Kondo's insulating layer is "electrically insulating" and also "resilient." The burden is on applicants to prove otherwise. Fitzgerald, supra.

It would have been obvious for a person having ordinary skill in the art to form on the surface of the charge generating layer **6** in the photoconductive imaging member rendered obvious over the combined teachings of Yuh, as evidenced by Diamond I, and Lin, as evidenced by Ong'737, an overcoating layer that comprises a cross linked silicone rubber layer and an insulating silicone resin layer having a thickness of 10 micrometers on the crosslinked silicone rubber layer as taught by Kondo. That person would have had a reasonable expectation of successfully obtaining a positively charged photoconductive imaging member having improved durability and mechanical strength as taught by Kondo.

6. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yuh, as evidenced by Diamond I, combined with (1) Lin, as evidenced by Ong'737, and (2) Kondo, as evidenced by Grant & Hackh's I, as applied to claim 10 above, further combined with (3) US 6,210,767 B1 (Knauf), (4) US 4,600,673 (Hendrickson), and (5) Grant & Hackh's Chemical Dictionary, fifth edition, pp. 293 (Grant & Hackh's II).

Yuh, as evidenced by Diamond I, combined with (1) Lin, as evidenced by Ong'737, and (2) Kondo, as evidenced by Grant & Hackh's I, renders obvious a positively charged photoconductive imaging member as described in paragraph 5 above, which is incorporated herein by reference.

Kondo does not discloses that its cross linked silicone rubber layer is obtained from dimethyl polysiloxane hydrolyzate as recited in instant claim 24. However, Kondo does not limit the type of curable silicone rubber used. As discussed in paragraph 5 above, Kondo discloses that the curable rubber used in its curable rubber layer is a rubber which is cured by energy, such as heat, light, an electron beam and the like. Col. 4, lines 28-30.

Knauf identifies the commercially available product SYL-OFF 23, manufactured by Dow Corning Company, is well known as a curable "silicone rubber" polymer. See Knauf, col. 3,

lines 54-56. Hendrickson teaches that the topcoat layer for a photoconductive element can comprise a crosslinked silicone polymer that is obtained by curing (i.e., cross linking) the silicone polymer associated with the material marked or associated with the trademark SYL-OFF 23. Hendrickson, col. 2, lines 45-48; col. 3, lines 36-58; and col. 10, lines 15-21. Hendrickson identifies the silicone polymer associated with the mark SYL-OFF 23 as a silanol terminated polydimethylsiloxane within the scope of formula I disclosed at col. 3, lines 40-59. See col. 10, lines 19-20. Hendrickson teaches that said silicone polymer is cured by heat. Col. 15, lines 33-35.

Instant claim 24 recites that the crosslinked silicone rubber prior to crosslinking is "dimethyl polysiloxane hydrolyzate." The term "hydrolyzate" is usually applied to a substance that has been obtained by hydrolysis. Hydrolysis is a decomposition reaction caused by water resulting in the formation of a hydroxyl group. See Grant & Hackh's Chemical Dictionary, page 293. Thus, the dimethyl polysiloxane hydrolyzate recited in instant claim 24 is described in product-by-process format. Neither Hendrickson nor Knauf discloses that SYL-OFF 23 is a dimethylpolysiloxane hydrolyzate. However, as discussed supra, Hendrickson identifies SYL-OFF 23 as a silanol (-SiOH) terminated polydimethylsiloxane. In other words, SYL-

OFF 23 has a terminal hydroxyl group. Thus, SYL-OFF 23 appears to be the same or similar to the dimethyl polysiloxane hydrolyzate recited in instant claim 24. The burden is on applicants to prove otherwise. In re Marosi, 218 USPQ 289 (Fed. Cir. 1983); In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985); MPEP 2113.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kondo, Knauf, and Hendrickson, to use the commercially available curable silicone rubber polymer associated with the mark or trademark SYL-OFF 23, manufactured by Dow Corning Company, as the curable silicone rubber in the cross-linked silicone rubber layer disclosed by Kondo in the photoconductive imaging member rendered obvious over the Yuh, as evidenced by Diamond I, combined with the teachings of (1) Lin, as evidenced by Ong'737, and (2) Kondo, as evidenced by Grant & Hackh's I. That person would have had a reasonable expectation of successfully obtaining a positively charged photoconductive imaging member having improved durability and mechanical strength as taught by Kondo.

7. Claims 6-10, 12-18, 21, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,316,880 (Pai), as evidenced by Diamond I, combined with: (1) Yuh; (2) Lin, as

evidenced by Ong'737; and (3) Kondo, evidenced by Grant & Hackh's I.

Pai discloses a photoconductive imaging member comprising in order (1) a conductive substrate, (2) a charge blocking layer, (3) an adhesion layer, (4) a charge generation layer, and (5) a charge transport layer. See col. 4, lines 59-61, and example VII at cols. 24-25.

(1) The conductive substrate comprises a polyethylene terephthalate film coated with a titanium layer. Col. 24, lines 46-49. Pai further discloses that the substrate may be an endless flexible belt, a web, a rigid cylinder, or a sheet, all of which are within the limitations recited in instant claims 6 and 7. See Pai, col. 5, lines 10-13. The flexible belt may have a thickness of about 125 μm, which is within the range recited in instant claim 6. Col. 5, lines 16-17.

(3) The adhesive layer has a thickness of 50 Angstroms (i.e., 0.005 μm), which is within the range recited in instant claim 12. Col. 24, lines 53-55.

(4) The charge generation layer comprises a vanadyl phthalocyanine dispersed in a film forming binder. The layer has a thickness of about 1 μm, which reads on the thickness of "about 0.7 μm" recited in instant claim 21. Col. 24, lines 56-61. Pai also discloses that the charge generation

layer may have a preferred thickness of about 0.3 to about 3 μm. Col. 7, lines 58-59. The thickness of about 0.3 μm is within the range of about 0.2 to about 0.7 μm recited in instant claim 21.

(5) The charge transport layer comprises the arylamine charge transport molecules N,N'-diphenyl-N,N'-bis(3-methylphenyl)-(1,1'-biphenyl)-4,4'-diamine, dispersed in a polyethercarbonate charge transport polymer. Col. 24, lines 60-66. The arylamine charge transport component meets the compositional limitations recited in instant claims 13-16. The polyethercarbonate is within the compositional limitations recited in instant claims 17 and 18. The charge transport layer has a thickness of 30 μm, which is within the thickness range recited in instant claim 16.

Pai does not exemplify a photoconductive imaging member where the charge generation layer is on top of the charge transport layer. However, Pai teaches that in some embodiments, the charge transport layer can be applied onto the blocking layer prior to the application of the charge generation layer. Col. 4, lines 66-68. In other words, Pai teaches that the charge generation layer can be applied on top of the charge transport layer, which meets the layer structure recited in instant claim 10.

Pai does not identify the photoconductive imaging member having the above disclosed layer structure as a positively charged photoconductive imaging member. However, it is well known in the electrophotographic art that the layer structure disclosed by Pai provides a positively charged photoconductive imaging member. See Diamond, page 398, section 9.4.1, lines 19-21, which states "[w]hen it is desired to charge the photoreceptor to a positive potential, the layers may be inverted with the transport layer coated on the substrate and the charge generation layer on the top."

According to Pai, its photoconductive imaging member exhibits improved imaging operation during extended image cycling, integrity of layers underlying the charge transport layer, and high charge carrier mobilities. Col. 4, lines 10-27.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Pai, to place the charge generation layer on top of the charge transport layer in the photoconductive imaging member disclosed by Pai. That person would have had a reasonable expectation of successfully obtaining a positively charged photoconductive imaging member that exhibits improved imaging operation during extended image cycling, integrity of layers underlying the charge transport layer, and high charge carrier mobilities, as taught by Pai.

Pai also does not exemplify a charge blocking layer (2) as recited in instant claim 10. However, Pai does not limit the type of blocking layer used. Col. 4, lines 56-61 and 66-68.

Yuh teaches a charge blocking layer that comprises a binder resin having dispersed therein a plurality of grain shaped n-type organic pigment particles and a plurality of needle shaped n-type organic particles. Yuh teaches that the n-type organic pigment particles preferably are benzimidazole perylene, which is identified as a photoconductive charge generating pigment (i.e., photogenerating pigment). The discussion of the Yuh charge blocking layer in paragraph 5 above is incorporated herein by reference. As discussed in paragraph 5, Yuh teaches that its charge blocking layer can be used in photoconductive imaging members where the charge generation layer is applied to the top of the charge transport layer. See Yuh, Fig. 2, and col. 2, line 13. According to Yuh, its charge blocking layer is an improved charge blocking layer. Col. 1, lines 7-8. Yuh teaches that the "needle-line particles are easily contacted with the predominant grain like particles and the contact area between the particles is greater than that of grain-like particles alone. The electron transport through the blocking layer can then be improved by the better contacts between particles. Therefore, even with a smaller content of the

needle-like particles in the blocking layer, a blocking layer having an equivalent properties can be easily produced. Employing a reduced amount of needle-like particles is advantageous for improving film strength and adhesive properties with the conductive support. The properties of the photoreceptor containing the needle-like particles are not degraded after repeated use because the contact between the needle-like particles thereof are strong, whereby excellent stability is obtained." Col. 8, lines 1-16.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Yuh, to incorporate the Yuh charge blocking layer comprising a plurality of grain shaped n-type organic particles and a plurality of needle shaped n-type organic particles, where the organic particles are benzimidazole perylene, as the charge blocking layer in the photoconductive imaging member rendered obvious over the teachings of Pai. That person would have had a reasonable expectation of successfully obtaining a positively charged photoconductive imaging member that has improved durability and excellent stability.

Yuh does not disclose that the binder resin in its blocking layer comprises a crosslinked polysiloxane polymer as recited in instant claim 10. However, Yuh teaches that the "binder resin

may be formed of the same materials as that of the blocking layer formed as a single resin layer." Col. 6, lines 1-3. Yuh further teaches that the blocking layer can comprise a polymer, such as a polysiloxane. Col. 5, lines 1-17.

Lin teaches a single resin charge blocking layer comprising a crosslinked polysiloxane polymer. For the reasons discussed in paragraph 5 above, it is reasonable to conclude that the crosslinked polysiloxane polymer taught by Lin forms a network impregnated with hydroxy-containing polymers. Lin further teaches that its charge blocking underlayer can be used in photoconductive members that follow any of various known photoreceptor designs. The discussions of Lin and Ong'737 in paragraph 5 above are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Yuh and Lin, to use the Lin crosslinked polysiloxane polymer as the binder resin in the charge blocking layer in the photoconductive imaging member rendered obvious over the combined teachings of Pai and Yuh, such that the cross-linked polysiloxane polymer is dispersed therein with the plurality of grain shaped n-type organic particles and the plurality of needle shaped n-type organic particles, where the organic particles are benzimidazole perylene, as taught by Yuh. That person would have had a

reasonable expectation of obtaining a positively charged photoconductive imaging member that has enhanced electrical performance characteristics, in particular stable environmental and cyclic performance as disclosed by Lin.

Pai does not exemplify an imaging member comprising an overcoat layer that comprises a crosslinked silicone rubber and a resilient, electrically insulating overcoating layer as recited in instant claim 10. However, Pai discloses that its imaging member may comprise an overcoat layer to improve the resistance to abrasion. Col. 20, lines 54-55. Pai further discloses that the overcoating layer is well-known in the art. Col. 20, lines 58-59.

Kondo discloses a two layer topcoat for photoconductive imaging members, which comprises a cross linked silicone rubber layer and an insulating silicone resin layer on top of the cross linked silicone rubber layer. The discussions of Kondo and Grant & Hackh's I in paragraph 5 supra are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to form on the surface of the photoconductive imaging member rendered obvious over the combined teachings of (1) Pai, as evidenced by Diamond, (2) Yuh, and (3) Lin, as evidenced by Ong'737, an overcoat layer that comprises a

crosslinked silicone rubber layer and an insulating silicone resin layer having a thickness of 10 micrometers on the crosslinked silicone rubber layer as taught by Kondo. That person would have had a reasonable expectation of successfully obtaining a positively charged photoconductive imaging member having improved durability and mechanical strength as taught by Kondo.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pai, as evidenced by Diamond I, combined with: (1) Yuh; (2) Lin, as evidenced by Ong'737; and (3) Kondo, as evidenced by Grant & Hackh's I, as applied to claim 10 above, further combined with (5) Knauf, (6) Hendrickson, and (7) Grant & Hackh's II.

Pai, as evidenced by Diamond I, combined with (1) Yuh, (2) Lin, as evidenced by Ong'737, (3) Kondo, as evidenced by Grant & Hackh's I, renders obvious a positively charged photoconductive imaging member as described in paragraph 7 above, which is incorporated herein by reference.

Kondo does not discloses that its cross linked silicone rubber layer is obtained from dimethyl polysiloxane hydrolyzate as recited in instant claim 24. However, Kondo does not limit the type of curable silicone rubber used. As discussed in

paragraph 5 above, Kondo discloses that the curable rubber used in its curable rubber layer is a rubber which is cured by energy, such as heat, light, an electron beam and the like. Col. 4, lines 28-30.

Knauf identifies the commercially available product SYL-OFF 23, manufactured by Dow Corning Company, is well known as a curable "silicone rubber" polymer. The discussions of Knauf, Hendrickson, and Grant & Hackh's II in paragraph 6 above are incorporated herein by reference. For the reasons discussed in paragraph 6 above, it is reasonable to conclude that SYL-OFF 23 appears to be the same as the product recited in instant claim 24. The burden is on applicants to prove otherwise.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kondo, Knauf, and Hendrickson, to use the commercially available curable silicone rubber polymer associated with the mark or trademark SYL-OFF 23, manufactured by Dow Corning Company, as the curable silicone rubber in the cross-linked silicone rubber layer disclosed by Kondo in the photoconductive imaging member rendered obvious over the combined teachings of (1) Pai, as evidenced by Diamond I, (2) Yuh, (3) Lin, as evidenced by Ong'737, and (4) Kondo, as evidenced by Grant & Hackh's I. That person would

have had a reasonable expectation of successfully obtaining a positively charged photoconductive imaging member having improved durability and mechanical strength as taught by Kondo.

9. Applicant's arguments filed on Dec. 15, 2005, and on Apr. 12, 2006, as applied to the rejections set forth in paragraphs 5-8 above have been fully considered but they are not persuasive.

In the response filed on Dec. 15, 2005, applicants assert that because the imaging member recited in the instant claims is a "positively charged" member, the blocking layer recited in the instant claims "would need to contain p-type particles," which transport holes. Applicants assert that Yuh teaches only the use of n-type particles, which transport electrons, in its charge blocking layer, and therefore teaches away from the use of p-type particles in its charge blocking layer.

Applicants' arguments are not persuasive. Applicants' assertion that the hole blocking layer recited in the instant claims "would need to contain p-type particles" is mere attorney argument, which is not supported by any objective evidence on the present record. There is no evidence on the present record to show that the hole blocking layer recited in instant claim 10 requires the presence of p-type particles. Instant claim 10

recites the presence of a "hole blocking layer including a crosslinked polysiloxane polymer network impregnated with a hydroxy-functionalized polymer and photogenerating pigments" (emphasis added). The instant specification at page 12, lines 4-6, describes a hole blocking layer as being "capable of forming a barrier to prevent hole injection from the conductive layer to the opposite photoconductive layer may be utilized" (emphasis added). Yuh at col. 5, lines 4-7, also teaches that hole blocking layers are "capable of forming a barrier layer to prevent hole injection from the conductive layer to the opposite photoconductive layer" (emphasis added). Not surprisingly, the "hole blocking layer" blocks holes. In the response filed on Dec. 15, 2005, applicants state that n-type particles transport electrons while p-type particles transport holes. Thus, based on applicants' statement, because a hole blocking layer blocks hole injection, it would appear that a hole blocking layer would comprise n-type particles as taught by Yuh, not p-type particles that transport holes.

Furthermore, instant claim 10 does not recite that the photogenerating pigments are "p-type particles." Nor does the instant specification define the photogenerating pigments as "p-type particles." The instant specification, page 8, lines 23-25, merely describes a "hole blocking layer" containing

"a crosslinked polysiloxane polymer network impregnated with a hydroxy-functionalized polymer and photogenerating pigments." Applicants cannot argue patentability based on limitations that are not present in the claims.

In the response filed on Apr. 12, 2006, applicants assert that it is the examiner's burden to show that Yuh discloses the use of p-type particles in order to render the instant claims obvious.

Applicants' assertion is not persuasive. For the reasons discussed above, there is no evidence on the present record to show that the "hole blocking layer" recited in instant claim 10 requires the presence of p-type particles. The instant specification does not describe the use of p-type particles in the hole blocking layer. Nor does the instant specification define the photogenerating pigments recited in the hole blocking layer of claim 10 to be p-type particles.

Furthermore, as discussed in the rejection in paragraph 5 above, Yuh teaches that its charge blocking layer that comprises a plurality of the n-type particles can be used as the charge blocking layer in a photoconductive imaging member where the charge generating layer is coated on the top of the charge transport layer, as recited in instant claim 10. See Yuh, Fig. 2, and col. 2, lines 25-30. Thus, Yuh teaches a positively

charged photoconductive imaging member comprising the required photoconductive layer structure, i.e., a charge generating layer coated on a charge transport layer, recited in the instant claims. Accordingly, for the reasons discussed above and in the rejections set forth in paragraphs 5-8 above, the rejections of claims 6-10, 12-18, 20, 21, and 24-26 stand.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Mr. Nam Nguyen, can be reached on (571) 272-1342. The central fax phone number is (571) 273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Jun. 4, 2006